

3.3.3.1 Bracken Grassland

3.3.3.1.1 Community Overview

Bracken grasslands occur in northern Wisconsin on upland sites with infertile sandy soils. These communities are dominated by bracken fern, Pennsylvania sedge, Kalm's brome grass, and Canada bluegrass. Other common herbs include poverty oat-grass, Lindley's aster, gray goldenrod, and common strawberry. Some sites have variable coverages of low shrubs such as blueberries, sweet fern, prairie willow, and hazelnuts. Exotic, non-native plants are often present on these sites and sometimes reach relatively high cover values. Not all of these exotics are invasive, however.

The origin of this type is unclear, but apparently includes an interacting mixture of topographic and edaphic conditions, past disturbance history, and perhaps some degree of allelopathy due to the abundance of one of the commonly dominant plants, bracken fern. The community is fire-dependent, was probably maintained by relatively frequent ground fires, and on some landforms is associated with low-lying frost pockets where frosts occur during the growing season. There is disagreement on whether bracken grassland should be considered a separate "natural community" in Wisconsin and elsewhere in the Upper Great Lakes region. The type shares some similarities with dry sand prairie, but because of its northerly range possesses fewer prairie species. It intergrades to pine barrens or northern dry forest, with jack pine as the dominant tree species. Physiognomically, this community can be composed mostly of herbs, shrubs (with patches of ericaceous "heath" being especially prominent), or occur as a complex mosaic of grassy or shrubby openings, interspersed with patches or "islands" of jack pine, balsam fir, northern pin oak, aspens, and cherries.

3.3.3.1.2 Vertebrate Species of Greatest Conservation Need Associated with Bracken Grassland

Twelve vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with bracken grassland (Table 3-78).

Table 3-78. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with bracken grassland communities.

<i>Species Significantly Associated with Bracken Grassland</i>
Birds
Upland Sandpiper
Brown Thrasher
Vesper Sparrow
Herptiles
Boreal Chorus Frog
Wood Turtle
Blanding's Turtle
Mammals
Gray Wolf
<i>Species Moderately Associated with Bracken Grassland</i>
Birds
Northern Harrier
Sharp-tailed Grouse
Field Sparrow
Grasshopper Sparrow
Western Meadowlark

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-78 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both bracken grassland and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of bracken grassland in each of the Ecological Landscapes (Tables 3-79 and 3-80).
- Using the analysis described above, a species was further selected if it had both a significant association with bracken grassland and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of bracken grassland. These species are shown in Figure 3-12.

Table 3-79. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with bracken grassland communities and their association with Ecological Landscapes that support bracken grassland.

Bracken Grassland Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Birds (3)*			Herptiles (3)			Mammals (1)
	Upland Sandpiper	Brown Thrasher	Vesper Sparrow	Boreal Chorus Frog	Wood Turtle	Blanding's Turtle	Gray Wolf
MAJOR							
Northeast Sands							
IMPORTANT							
Northern Highland							

Color Key

- = HIGH probability the species occurs in this Ecological Landscape
- = MODERATE probability the species occurs in this Ecological Landscape
- = LOW or NO probability the species occurs in this Ecological Landscape

* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

Table 3-80. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with Bracken grassland communities and their association with Ecological Landscapes that support bracken grassland.

Bracken Grassland Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Birds (5)*				
	Northern Harrier	Sharp-tailed Grouse	Field Sparrow	Grasshopper Sparrow	Western Meadowlark
MAJOR					
Northeast Sands					
IMPORTANT					
Northern Highland					

* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

Color Key




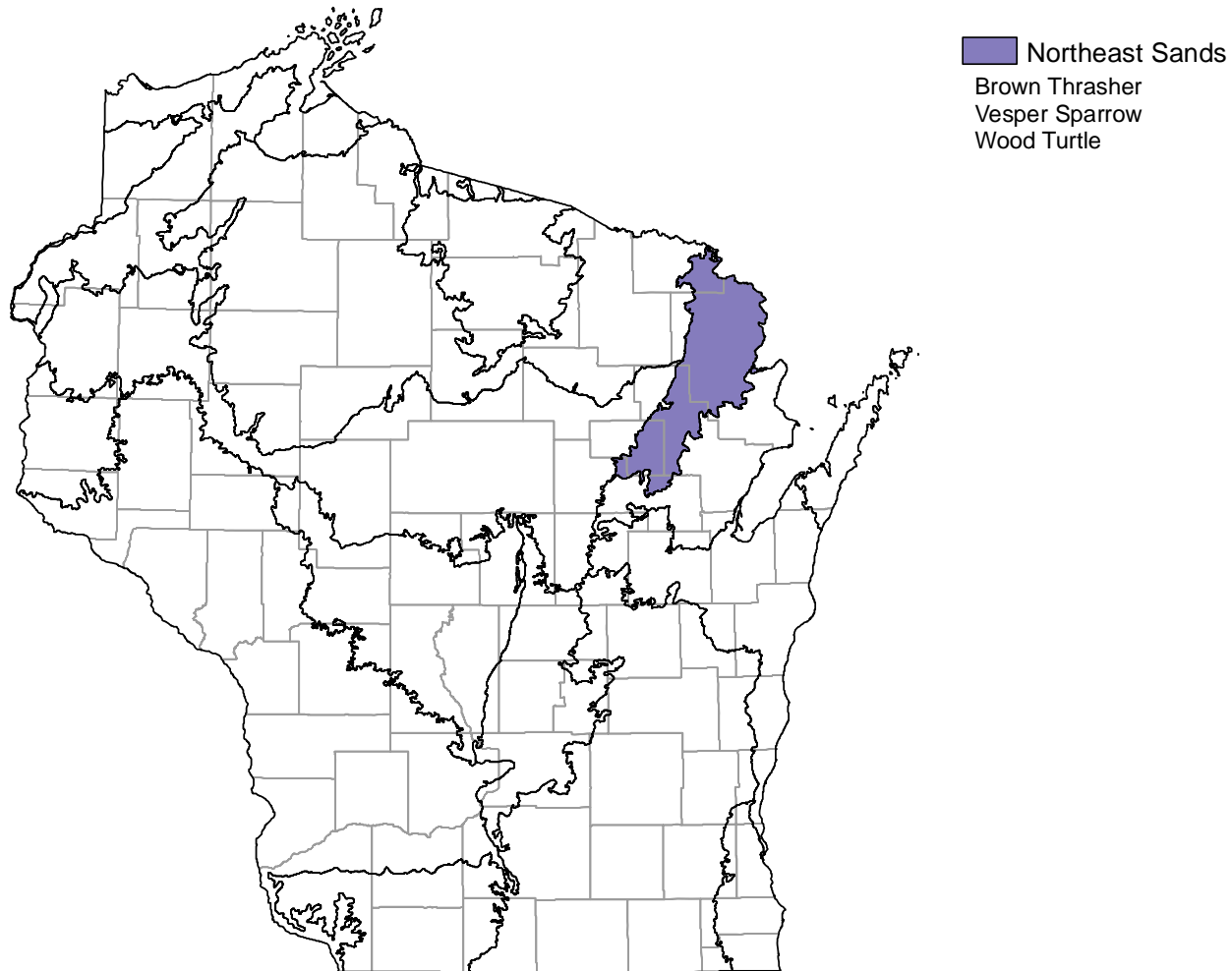
-  = HIGH probability the species occurs in this Ecological Landscape
-  = MODERATE probability the species occurs in this Ecological Landscape
-  = LOW or NO probability the species occurs in this Ecological Landscape

Figure 3-12. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with bracken grassland *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of bracken grassland.



3.3.3.1.3 Threats and Priority Conservation Actions for Bracken Grassland

3.3.3.1.3.1 Statewide Overview of Threats and Priority Conservation Actions for Bracken Grassland

The following list of threats and priority conservation actions were identified for bracken grassland in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.3.1.3.2 unless otherwise indicated.

Threats and Issues

- Lack of fire is a threat to bracken grasslands, allowing them to be overtaken by shrubs and eventually trees. Research is needed on the frequency and intensity of fires needed to maintain these communities.
- Afforestation to pine and, in some areas, spruce plantations is another possible threat.
- These sites are often attractive for motorized recreation, but can be easily damaged. Vehicle use on these sandy soils can destroy vegetation and expose the loose sand beneath, leading to wind erosion and requiring long time frames for revegetation to occur.
- Invasive plants such as spotted knapweed and leafy spurge can easily invade and become abundant in this community, particularly after soil disturbance.

Priority Conservation Actions

- Existing sites should be protected from afforestation and vehicle damage.
- Prescribed fire can be used to maintain the community type by limiting the growth of woody vegetation and encouraging fire-adapted species.
- Avoid soil disturbance that leads to invasive plant establishment or wind erosion, or increasing dominance of Pennsylvania sedge.
- Whether this type is considered a “natural community” or not, bracken grasslands clearly represent an important open habitat in the northernmost parts of the state. Large openings could be managed along with pine barrens or surrogate prairie grasslands (e.g., pastures, old fields, small airfields, etc.) to provide habitat for area sensitive species. Elsewhere, small openings are suitable for a variety of animals that prefer or require openings to meet habitat needs during part of their life cycle.

3.3.3.1.3.2 Additional Considerations for Bracken Grassland by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of bracken grassland exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for bracken grassland found in Section 3.3.3.1.3.1.

Additional Considerations for Bracken Grassland in Ecological Landscapes with **Major** Opportunities for Protection, Restoration, and/or Management of Bracken Grassland

Northeast Sands

Spread Eagle Barrens State Natural Area is the largest existing representative site, including pine barrens and bracken grasslands. It occupies a total of about 8,500 acres in Florence County. The land's surface features were formed by glaciation; rolling collapsed outwash plains are characteristic of Spread Eagle Barrens. Bracken grasslands occur in depressions where frosts limit the growth of woody vegetation, and pine barrens with scattered jack pines are common in other areas.

Part of Spread Eagle Barrens is owned by WDNR, and the remainder is managed under a conservation easement with WE Energies. The site supports some area-sensitive species like northern harrier and upland sandpiper, as well as birds that key in strongly on specific habitat structural features such as chestnut-sided warbler, clay-colored sparrow, and rufous-sided towhee. Restoration and management is accomplished through a combination of limited timber harvesting and prescribed burning. Non-motorized uses, such as bird watching and blueberry picking, are available to visitors.

Additional Considerations for Bracken Grassland in Ecological Landscapes with **Important** Opportunities for Protection, Restoration, and/or Management of Bracken Grassland

Northern Highland

Good examples of this unusual and poorly understood herb-dominated community occur in dry kettle depressions within pitted glacial outwash landforms that cover significant portions of this Ecological Landscape. Native herb-dominated communities are unusual on upland sites in this portion of northern Wisconsin. Only a few examples have been documented, they are all small (<100 acres), and they appear to be maintained in part by the periodic occurrence of growing season frosts that prevent or inhibit tree growth. Tree planting has been attempted and failed in these areas in the past. Maintenance of representative examples of this community type is desirable here for ecological, recreational, and aesthetic reasons.

More thorough surveys for this type on appropriate landforms in northern Wisconsin, north of the ranges of most prairie plants, could prove fruitful (e.g., at the northern extremity of the Northwest Sands Ecological Landscape in northern Bayfield County).